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Descrizione fisica	1 online resource (270 p.)
Collana	Topics in colloid and interface science
Altri autori (Persone)	TadrosTharwart F
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Nota di contenuto	Emulsion Formation and Stability; Contents; Preface; List of Contributors; 1 Emulsion Formation, Stability, and Rheology; 1.1 Introduction; 1.1.1 Nature of the Emulsifier; 1.1.2 Structure of the System; 1.1.3 Breakdown Processes in Emulsions; 1.1.4 Creaming and Sedimentation; 1.1.5 Flocculation; 1.1.6 Ostwald Ripening (Disproportionation); 1.1.7 Coalescence; 1.1.8 Phase Inversion; 1.2 Industrial Applications of Emulsions; 1.3 Physical Chemistry of Emulsion Systems; 1.3.1 The Interface (Gibbs Dividing Line); 1.4 Thermodynamics of Emulsion Formation and Breakdown 1.5 Interaction Energies (Forces) between Emulsion Droplets and Their Combinations1.5.1 van der Waals Attraction; 1.5.2 Electrostatic Repulsion; 1.5.3 Steric Repulsion; 1.6 Adsorption of Surfactants at the Liquid/Liquid Interface; 1.6.1 The Gibbs Adsorption Isotherm; 1.6.2 Mechanism of Emulsification; 1.6.3 Methods of Emulsification; 1.6.4 Role of Surfactants in Emulsion Formation; 1.6.5 Role of Surfactants in Droplet Deformation; 1.7 Selection of Emulsifiers; 1.7.1 The Hydrophilic-Lipophilic Balance (HLB) Concept; 1.7.2 The Phase Inversion Temperature (PIT) Concept 1.7.3 The Cohesive Energy Ratio (CER) Concept1.7.4 The Critical Packing Parameter (CPP) for Emulsion Selection; 1.8 Creaming or

Sedimentation of Emulsions; 1.8.1 Creaming or Sedimentation Rates; 1.8.2 Prevention of Creaming or Sedimentation; 1.9 Flocculation of Emulsions; 1.9.1 Mechanism of Emulsion Flocculation; 1.9.1.1 Flocculation of Electrostatically Stabilized Emulsions; 1.9.1.2 Flocculation of Sterically Stabilized Emulsions; 1.9.2 General Rules for Reducing (Eliminating) Flocculation; 1.10 Ostwald Ripening; 1.11 Emulsion Coalescence; 1.11.1 Rate of Coalescence; 1.11.2 Phase Inversion
1.12 Rheology of Emulsions1.12.1 Interfacial Rheology; 1.12.1.1 Interfacial Tension and Surface Pressure; 1.12.1.2 Interfacial Shear Viscosity; 1.12.2 Measurement of Interfacial Viscosity; 1.12.3 Interfacial Dilational Elasticity; 1.12.4 Interfacial Dilational Viscosity; 1.12.5 Non-Newtonian Effects; 1.12.6 Correlation of Emulsion Stability with Interfacial Rheology; 1.12.6.1 Mixed Surfactant Films; 1.12.6.2 Protein Films; 1.13 Bulk Rheology of Emulsions; 1.13.1 Analysis of the Rheological Behavior of Concentrated Emulsions; 1.14 Experimental nr - o Curves; 1.14.1 Experimental nr - o Curves
1.14.2 Influence of Droplet Deformability1.15 Viscoelastic Properties of Concentrated Emulsions; 1.15.1 High Internal Phase Emulsions (HIPEs); 1.15.2 Deformation and Breakup of Droplets in Emulsions during Flow; References; 2 Emulsion Formation in Membrane and Microfluidic Devices; 2.1 Introduction; 2.2 Membrane Emulsification (ME); 2.2.1 Direct Membrane Emulsification; 2.2.2 Premix Membrane Emulsification; 2.2.3 Operating Parameters in Membrane Emulsification; 2.2.4 Membrane Type; 2.2.4.1 Surfactant Type; 2.2.4.2 Transmembrane Pressure and Wall Shear Stress
2.3 Microfluidic Junctions and Flow-Focusing Devices

Sommario/riassunto

The importance of emulsification techniques, their use in the production of nanoparticles for biomedical applications as well as application of rheological techniques for studying the interaction between the emulsion droplets is gathered in this reference work. Written by some of the top scientists within their respective fields, this book covers such topics as emulsions, nano-emulsions, nano-dispersions and novel techniques for their investigation. It also considers the fundamental approach in areas such as controlled release, drug delivery and various applications of nanotechno